LESSON 55

Studio: Red v Green v Blue

40 minutes | Project studios (optional extension sessions) | Built in Scratch | Outcome 1.7 | Outcome 1.8

WHAT THIS LESSON DOES

Students build a Scratch infection-race simulation with clones and a count variable, then predict and test which colour wins and why the result differs each run.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
1.7	Discuss and implement core features of a structured programming language: variables, operators, loops, decisions, assignment and modules.
1.8	Test code to find and manage errors.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Build a simulation where clones and a count variable create a race (LO 1.7)
- Predict, then test, which colour wins and why it differs each run (LO 1.8)

BEFORE THE BELL

- Devices ready with Scratch open; students logged in to their accounts
- Have the optional starter project link available if anyone cannot paint the red dot sprite
- Model the sprite editor and the first code blocks on the board before pairs work independently

WHAT YOU NEED

Item	Qty	Per	If you do not have it
tablet or laptop with Scratch	1	pair	run the lesson on the IWB with students taking turns

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HOW THE LESSON RUNS

4 min	introduction	Start: what we're building
3 min	content	Create a new Scratch project
5 min	content	Create a red dot sprite
2 min	content	Create the green and blue costumes
2 min	content	Create a 'count' variable
4 min	content	Create 100 clones of the dot
3 min	content	Appear randomly
3 min	content	Make them move
6 min	content	Make them infect each other!
2 min	content	Improve the project!
3 min	content	Make sense: what worked, what broke
2 min	content	Reflect
1 min	summary	What you covered

TEACHING MOVES

- Keep the start short so most of the lesson sits on the build; model only the first step or two, then circulate
- Pair stronger sprite-editor users with peers who are new to costumes and the paint tools
- Before the first green-flag run after the appear step, ask for a quick prediction of which colour might win and why
- When infection is added, pause on the nested if then structure on the board so students can match the colour rules before they type

WHAT TO WATCH FOR

- Costumes not named exactly red, green and blue, so random costume changes look wrong: check names in the sprite editor
- Count never reaches past 99 or clones stop early: confirm the repeat until condition and that change count by 1 sits inside the loop
- Infection rules in the wrong order or not nested: rebuild the if then stack from the colour rules on the board

DIFFERENTIATION

- Support: Offer the starter project with the backdrop ready; let pairs share the sprite-painting steps
- Extension: Change move speed, clone count or infection rules and compare which colour tends to win
- Extension: Add a simple on-screen tally of how many of each colour remain after a set time